



WHAT IS CLAIMED IS:

1. A composite laminate interlayer for adhering a glass laminate consisting essentially of a sheet of polyethylene terephthalate between layers of plasticized polyvinyl butyral  
5 adhesive layers, wherein at least one of said polyvinyl butyral adhesive layers has a glass transition temperature greater than 35 °C.
2. An interlayer according to claim 1 wherein said polyvinyl butyral adhesive layers are of different thickness.
3. An interlayer according to claim 1 wherein said polyethylene terephthalate sheet has a  
10 thickness greater than 0.075 millimeters (3 mils).
4. An interlayer according to claim 1 wherein said polyethylene terephthalate sheet has a thickness greater than 0.1 millimeters (4 mils).
5. An interlayer according to claim 1 wherein said sheet of polyethylene terephthalate has a functional coating for reducing radiation transmission through said glass laminate.
- 15 6. A composite laminate interlayer for adhering glass laminates consisting essentially of a layer of polyethylene terephthalate between layers of plasticized polyvinyl butyral adhesive layers, wherein the polyethylene terephthalate layer has a thickness in the range of 0.125 to 0.254 millimeters (5-10 mils); and each adhesive layer has a thickness in the range of 0.25 to 2 millimeter (10 - 80 mils) and wherein the plasticized polyvinyl butyral  
20 has a glass transition temperature greater than 35 °C.
7. A composite laminate interlayer for adhering glass laminates consisting essentially of three layers of plasticized polyvinyl butyral sheet adhered to each other wherein the inner layer of polyvinyl butyral has a glass transition temperature greater than 35 °C and the outer layers of polyvinyl butyral has a glass transition temperature less than 35 °C.
- 25 8. A composite laminate interlayer for adhering glass laminates comprising a layer of plasticized polyvinyl butyral adhesive having a glass transition temperature greater than 35 °C, at least one layer of polyethylene terephthalate sheet having a thickness greater

than 0.075 millimeters (3 mils), at least one elastomeric layer adapted to reducing sound transmission through the glass laminate, at least one other layer of plasticized polyvinyl alcohol adhesive.

9. A glass laminate having improved stiffness comprising in order:

- 5           (a) a first glass sheet,
- (b) a first layer of plasticized polyvinyl butyral adhesive,
- (c) a sheet of polyethylene terephthalate greater than 0.075 millimeters (3 mils) thick,
- (d) a second layer of plasticized polyvinyl butyral adhesive,
- (e) a second glass sheet,

10          wherein said glass laminate exhibits a maximum flexural modulus of greater than about 350 Newtons/centimeter

10. A glass laminate according to claim 9 exhibiting a maximum load before failure of at least 3000 Newtons.

11. A glass laminate according to claim 9 wherein at least one of the layers of plasticized  
15          polyvinyl butyral has a glass transition temperature greater than 35 °C.

12. A glass laminate according to claim 9 wherein at least one of the layers of plasticized polyvinyl butyral has a glass transition temperature greater than 40 °C.

13. A glass laminate according to claim 9 further comprising a sheet of sound attenuating elastomer.

20          14. A glass laminate according to claim 9 wherein said sheet of polyethylene terephthalate has a radiation blocking coating.

15. A glass laminate having improved stiffness consisting essentially of in order:

- (a) a first glass layer,
- (b) a first layer of plasticized polyvinyl butyral adhesive,
- 25          (c) a layer of polyethylene terephthalate,
- (d) a second layer of plasticized polyvinyl butyral adhesive,
- (e) a second glass layer,

wherein at least one layer of plasticized polyvinyl butyral adhesive has a glass transition temperature greater than 35 °C

16. A glass laminate according to claim 15 wherein said glass laminate exhibits a maximum flexural modulus greater than about 350 Newtons/centimeter.
- 5 17. A glass laminate according to claim 15 wherein said glass laminate exhibits a maximum flexural modulus greater than about 450 Newtons/centimeter.
18. A glass laminate according to claim 15 wherein said glass laminate exhibits a maximum flexural modulus greater than about 550 Newtons/centimeter.
19. A glass laminate according to claim 15 wherein said glass laminate exhibits a maximum  
10 flexural modulus greater than about 650 Newtons/centimeter.
20. A glass laminate according to claim 15 exhibiting a maximum load before failure from a secured frame of at least 3000 Newtons.
21. A glass laminate according to claim 15 exhibiting a maximum load before failure from a secured frame of at least 4000 Newtons.
- 15 22. A glass laminate according to claim 15 exhibiting a maximum load before failure from a secured frame of at least 5000 Newtons.
23. A glass laminate according to claim 15 exhibiting a maximum load before failure from a secured frame of at least 6000 Newtons.
24. A glass laminate according to claim 15 wherein said sheet of polyethylene terephthalate  
20 has a radiation blocking coating.

25. A glass laminate having improved stiffness consisting essentially of in order:

- (a) a first glass sheet,
- (b) a first layer of plasticized polyvinyl butyral adhesive,
- 5 (c) a first sheet layer of polyethylene terephthalate,
- (d) a layer of sound attenuating elastomer,
- (e) a second sheet of polyethylene terephthalate,
- (f) a second layer of plasticized polyvinyl butyral adhesive,
- (g) a second glass sheet,

10 wherein at least one layer of plasticized polyvinyl butyral adhesive has a glass transition temperature greater than 35 °C.

26. A glass laminate having improved stiffness comprising at least one layer of a plasticized polyvinyl butyral composite consisting of a layer of plasticized polyvinyl butyral having  
15 a glass transition temperature of about 33 °C and a layer of plasticized polyvinyl butyral having a glass transition temperature of 35 °C or higher.

27. A glass laminate according to claim 26 comprising two or more layers of said plasticized polyvinyl butyral composite.

28. A glass laminate according to claim 26 further comprising a layer of biaxially stretched  
20 polyethylene terephthalate.